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ROBERT FULTON

FROM THE ORIGINAL PAINTING BY HIMSELF IN THE POSSESSION OF THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

THE STORY OF ROBERT FULTON

BY
PEYTON F. MILLER



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PREFACE

THE author is indebted for the facts detailed in this book to the biographies of Robert Fulton by Cadwallader D. Colden, James Renwick, J. Franklin Reigart, and Robert H. Thurston, *The Life and Letters of Joel Barlow*, by Charles Burr Todd, Lodge's *Portraits of Illustrious Personages of Great Britain*, the Memoirs of the Duchesse de Gontaut, *Clermont or Livingston Manor*, by Thomas Streatfield Clarkson, articles in *Cassier's Magazine* by H. N. Dickinson and Henry Harrison Suplee, and information given by D. McRa Livingston, Esq., and other members of the Livingston and Ludlow families, and books and pamphlets in the private library of Mrs. John V. L. Pruyn of Albany, New York.

P. F. M.

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The Story of Robert Fulton

CHAPTER I

THE FULTON FAMILY—BOYHOOD OF ROBERT FULTON

ROBERT FULTON, the inventor, was a descendant of the Reverend Doctor Robert Fulton, who, on September 8, 1614, was appointed by the Privy Council Chaplain to Lady Arabella Stuart, the only child of Charles, the fifth Earl of Lenox, who was an uncle of James the First and a lineal descendant of Henry the Seventh. She had been obnoxious to Queen Elizabeth and also to King James, who dreaded the supposed danger of her leaving legitimate offspring, and had secretly married William Seymour, first Marquis of Hertford. As soon as their

marriage was discovered he was committed to the Tower of London and Lady Arabella given into the custody of Sir Thomas Parry of Lambeth. They arranged to fly to France. Seymour escaped but his wife was captured and committed to the Tower, where she ended her days. This Robert Fulton was clearly a man of importance, having been associated with a person of such distinguished position in such a confidential relation. His descendants were, in Cromwell's time, driven from Scotland and went to Ireland, and established themselves near Kilkenny.

Robert Fulton, the father of the inventor, arrived in this country from Kilkenny about 1750. He settled in Philadelphia and, after engaging in mercantile pursuits there for several years, in 1759, having disposed of his business, moved with his family to a farm he had bought at Little Britain, Lancaster County, Pennsylvania. He had married Mary Smith, who was born in Philadelphia and was of Irish descent. Mr. Fulton died in 1768, leaving a widow, two sons, and three

daughters in very poor circumstances. Both he and his wife were Protestants and appear to have had a fair amount of education.

Their son Robert was born November 14, 1765. In 1766 the farm was sold and the family moved to the village of Lancaster. Robert was not sent to school until he was eight years old, his mother having taught him to read and write and the rudiments of arithmetic. Unlike most children, he worked incessantly and never seemed to find time for play. His alertness of mind asserted itself from his earliest years, and the quickness of perception which enabled him to discern and seize anything that would assist in his pursuits was marvellous. One might well know nothing would escape this bright boy that would be useful to him. He showed a decided talent for drawing and painting when very young and threw himself into artistic efforts with enthusiasm and some of the work done in those early years he thought as well of as any he afterwards did.

His career at school was not characterized by a close application to his studies. He was industrious but not with books. He could not be tempted from his pursuits but was engrossed by them when his interest was aroused. On one occasion, after having seemed especially absorbed in some undertaking, he exhibited a lead pencil he had manufactured which was of the finest quality and was quickly copied by his fellow-students. On being remonstrated with by his teacher for neglecting his books, he replied, "My head is so full of thoughts of my own that I haven't room for the thoughts from dusty books." As a boy he displayed great interest in machinery and never missed an opportunity of being with men who were manufacturing tools or working with them. He soon became known to all the mechanics in the vicinity and they were always glad to welcome him to their workshops, and sometimes pleased to avail themselves of his suggestions. Some who were engaged in mounting rifles relied on him for designs

in ornamenting them and sketches of the sizes and shapes, size of the bore and balls, and calculations of the force and distances they would carry. He would frequently accompany them to a range where his calculations would be tested by shooting at a target.

His spirit was always exalted and appealed to by natural and artistic beauties. He was full of affection for his family and willing to yield to the commands of his superiors. His love for his country was unbounded and exhibited itself in his youth and all through his life.

Like the boys of that period, in fact like boys in the United States at all periods, he revelled in celebrating the anniversary of our Independence, the Fourth of July. It was at that time customary for the people to illuminate their houses, and candles, which were expensive and difficult for the ordinary boy to procure, were much in demand. Robert, in anticipation of the approaching celebration, had accumulated a

goodly number, when a notice was posted by the authorities forbidding the people to illuminate their houses. He immediately took his candles to the store and exchanged them for gunpowder and sheets of pasteboard, which he directed the shopkeeper not to roll. Upon being asked how he was going to use the powder and paper, he said he proposed to make candles which he would shoot through the air on the night of the Fourth. He was laughed at, but his efforts were successful, his celebration being more glorious than the town had ever before witnessed, and in consequence the thirteen-year-old boy became quite a local celebrity.

His society when a boy seemed always much sought after by men, who, while glad to have him about when they toiled, also welcomed him at other times. He frequently accompanied another boy and his father on fishing excursions. They went in a flat-boat, which the boys propelled with long poles. Young Fulton found this very laborious, so he invented paddle-wheels which were manip-

ulated by a crank and could be attached and detached with ease.

In his boyhood the Revolutionary War stirred the whole community, and in his neighborhood a number of Hessian soldiers were stationed. There were frequent collisions between them and the townspeople and Fulton had held them up to derision in caricatures he had made of them. There was so much disorder, it was finally arranged that at night the Hessians and townspeople should neither cross a rope stretched at a place agreed upon. Fulton drew a picture representing the townspeople on the Hessian side of the rope and engaged in annihilating the latter. It was displayed in a public place and much admired. In fact it aroused the people so much that that night the rope was crossed and a conflict took place, which was only stopped by the interference of the authorities.

When Fulton was seventeen years old, his mother apprenticed him to a jeweller in Philadelphia. In this new field, he con-

tinued his habits of industry and in addition to his regular work painted portraits, miniatures, and landscapes. At the end of four years with the money thus earned he bought a small farm in Washington County, Pennsylvania, upon which he settled his mother. He spent his twenty-first birthday with his family, and, after installing them on the new farm, went to the Hot Springs of Virginia which are in the vicinity for the benefit of his health, having suffered somewhat from a pulmonary trouble. At this place he was thrown in with a superior class of people who became interested in the young artist and he received orders which enabled him to do considerable work with his brush. His new friends and patrons advised him to take a sea-voyage and go to England and study under Benjamin West and gave him letters introducing him to Mr. West.

CHAPTER II

DEPARTURE FOR ENGLAND—ACQUAINTANCE
WITH BENJAMIN WEST—ARTISTIC LA-
BORS—A CIVIL ENGINEER—DEVOTES
TIME TO SCIENTIFIC PURSUITS AND
INVENTIONS.

IN 1738, in Chester County, which adjoined the one in which was the birthplace of Robert Fulton, a son was born to a Quaker family, whose circumstances were quite similar to those of Fulton's. This little boy at an early age manifested a remarkable talent for drawing and painting. Although the neighborhood was inhabited almost entirely by Quakers and there were no incentives to artistic pursuits, nothing could turn him aside, and Benjamin West, young in years, unaided by friends, hampered by the prejudices of those about him, and deprived of all the helps and inducements to an artistic career, persevered in his purpose. He painted

portraits for a time in Philadelphia, and as soon as he had saved enough money, went to Italy, where, with good letters of introduction, an attractive appearance, and agreeable manners, he was made much of by people of the highest rank. He finally settled in London where he became famous. He was one of the founders of the Royal Academy and was in 1792 elected its president, which office he retained for many years. The subjects of his paintings were chiefly biblical and historical and many of them were executed on commissions from George III.

He introduced the innovation of painting historic subjects as nearly as he could with truth and adherence to the facts, in opposition to dressing the figures in the costumes of the Greeks and Romans or portraying them as naked as gods. His productions were great in dimensions and numbers and at the time aroused enthusiasm and interest, but do not rank high in the opinion of art critics of the present. A portrait by him of Robert Fulton is owned

by Robert Fulton Ludlow, a grandson of the subject, and adorns his house at Claverack, New York.

We can understand how much may have been put into this portrait when we learn the relations which existed between the artist and Fulton. The latter having decided to go to England to pursue his art studies, on arriving presented the letters introducing and recommending him to Mr. West, one of which was from Benjamin Franklin, whose acquaintance he had made while living in Philadelphia. The reception he met far exceeded his expectations. The famous and well-established artist was more than cordial to the struggling young American, who had nothing to recommend him save his talents, devotion to art, ambition, attractive person, and charming manners. He lodged while in London at 67 Margaret Street, Cavendish Square, and was received by Mr. West as if he had been his son or a member of his family; he instructed him in the art in which he was then regarded as so proficient and

introduced him to a class of people an association with whom was an advantage from every point of view for one who was poor, struggling, and unknown. Fulton remained with Mr. West for several years. He was undoubtedly successful as an artist, for in 1791 and 1793 portraits by him were exhibited at the Royal Academy and in 1791 there were two portraits and two genre pictures of his at the exhibition of the society of artists of Great Britain.

While there were at that time many artistic treasures in England, they were scattered all over the land in private collections and there were no public art galleries of importance in London. On leaving Mr. West, Fulton, having procured the necessary letters of introduction, set forth on a visit to various private collections of works of art. Shortly after he appears to have been at Exeter in the county of Devon and for a while living at Powderham Castle, the chief seat of the Courtenays, the Earls of Devon, engaged in copying some of the paintings it contained.

His residence there seems to have filled him with a sense of obligation, for afterwards when living in New York and at the height of his fame and prosperity, he returned the favors he had received by kindness and hospitality to a member of that family who had fled from his own land in disgrace and humiliation and against whom almost every door was closed.

During Mr. Fulton's residence of two years in the vicinity of Exeter he extended his acquaintance in a way that was of advantage to him in his subsequent career. It seems as if at this period, Art, to which he had been so entirely devoted, did not give to him all the results and scope he had hoped for, and that his active mind and taste for experimenting and invention were asserting themselves and drawing him away from his former mistress.

Among the men with whom he appears then to have been most intimately associated was the Duke of Bridgewater, who at that time was in the possession of vast wealth, accu-

culated by him from the improvement of his estate, which was rich in mines. He had done this by canals and was regarded as the original promoter of the canal system which had enriched and developed England. He seems to have induced Fulton to abandon his career as an artist and become a civil engineer. We find him living at Birmingham and engaged at work on one of the canals then being built in that vicinity although in a subordinate position. He also seems to have been on terms of intimacy with Lord Stanhope, the third Earl, who was a man of talent and had exhibited skill as an engineer, and had also experimented in applying steam to navigation, by using an apparatus modelled after the foot of a water fowl, and in 1793 entered into a correspondence upon the subject with Fulton, who foresaw and predicted the failure of his experiment. In a letter to Lord Stanhope of October 7, 1793, he refers to the "moving of ships by means of steam" as "a subject on which I

have made important discoveries." This friendship was a lasting one, as indicated by a frequent interchange of letters, and was of much service to Fulton in transactions he afterwards had with the British government.

Mr. Fulton's writings and inventions indicate an intimate knowledge of the construction of the steam-engine. John Watt, who by this time had so improved it as to make it of practical use universally, was one of Mr. Fulton's Birmingham associates. His correspondence with the inventor shows that they were on confidential and intimate terms. The following letter was written by him to Messrs. Boulton & Watt:

"MANCHESTER, NOV. 4, 1794.

"GENTLEMEN:

"I shall esteem it a favour to be informed of the Expences of a Steam Engine with a Rotative movement of the purchase of 3 or 4 horses, which is designed to be placed in a Boat. You will Will [*sic*] be so good as to mention what sized boat it would

occupy, as I wish to have it in as little space as Possible, and what you consive will be the Expence when finished Compleat in the Boat. Whether you have one ready of the dimentions specified or how soon one might be finished. With Weight of Coals which it will consume in 12 hours, and what Quantity of purchase you allow to Each horse, as I am anxious to supply some Engines of the above dimentions as soon as Possible. Your Emediate Answer will much oblige Your

“Most obedient and very humble
Servant, ROBT. FULTON.

“BRIDGEWATER ARMS, MANCHESTER.”

This period was certainly a very busy one for Fulton. His attention seems to have been directed largely towards the improvement of canals, which he believed in as a means of developing the country far in advance of turnpikes, and he applied his mind intently to the problem of making them practicable in hilly and mountainous localities. In 1794 a patent was granted

to him by the government of Great Britain for a device intended to supersede locks on canals by a plane of double incline, which was contained in a book on Inland Navigation, published by him in 1796. He also obtained patents for a machine for spinning flax and one for twisting ropes and a mill for sawing and polishing marble. He was a man of indefatigable industry and carefully and thoroughly worked out as far as possible the various inventions he attempted. It has been stated that he never made a model of an invention until he had completed a drawing which showed every part projected on the proper scale.

CHAPTER III

VISITS FRANCE TO INTRODUCE TORPEDO—
FORMS FRIENDSHIP WITH JOEL BARLOW

ROBERT FULTON was always a loyal American and labored with a view of returning to the United States. He gave much thought to questions of government and believed that "The whole interior arrangements of governments should be to promote and diffuse knowledge and industry; their whole exterior negotiations to establish a social intercourse with each other and to give free circulation to the whole produce of virtuous industry." He also believed that the old world war system was the cause of the misery of the greatest number of its people. In one of his manuscripts, this passage is found: "After this I was convinced that society must pass through ages of progressive improvement before the freedom of the seas could be

established by an agreement of nations that it was for the benefit of the whole: I saw that the growing wealth and commerce, and the increasing population of the United States would compel them to look for a protection by sea, and perhaps drive them to the necessity of resorting to European measures, by establishing a navy. Seeing this, I turned my whole attention to find out means of destroying such engines of oppression by some method which would put it out of the power of any nation to maintain such a system, and would compel every government to adopt the simple principles of education, industry, and a free circulation of its produce."

Influenced by such considerations Mr. Fulton had been engaged for some time in perfecting an invention for the blowing up of vessels by attaching under the water a copper canister of gunpowder, to be discharged by a gunlock and clockwork. This he called a torpedo and with the view of having it adopted by the government of France, he left England

for Paris in 1797. Among the letters of introduction he took with him was one to Joel Barlow. Mr. Barlow was born in Connecticut in 1754, and graduated from Yale College in 1778. For several years he devoted himself to literary pursuits, and in 1788 went abroad as the representative of a great American land company. He carried letters introducing him to many prominent people in Paris and elsewhere. The company did not prove to be a success, but Barlow continued to live abroad. He devoted his time to literature and associated on terms of intimacy with many of the most distinguished people of Paris and London. In 1795 he was sent by the United States on a mission to Algiers to secure the release of a number of our citizens who had been captured by pirates and were held as prisoners. This mission being successful after a residence in Algiers of seventeen months, during which there was a visitation of the plague, he returned to Paris. His pen was constantly in use for the benefit of his country

and he exerted great influence in pacifying France at the time of the adoption of the treaty with England, under which the United States agreed to observe a strict neutrality in regard to France.

Mr. Fulton and Mr. Barlow became acquainted shortly after his arrival, and commenced an intimacy which lasted until the death of the latter. Fulton lived in his house for seven years and had the advantage of meeting his acquaintances and of always possessing an admiring, congenial, and devoted friend. They seemed to enter into each other's plans with the utmost enthusiasm and loyalty. The *Columbiad*, or Vision of Columbus, a national and historical poem, written by Mr. Barlow, was dedicated to Robert Fulton, who is described as the "dear friend" of the author. The twelve plates illustrating this work cost five thousand dollars, were designed and published by Mr. Fulton at his own expense and in his will he bequeathed them to Mrs. Barlow, and also provided that an in-

debtedness of two thousand dollars to him from the estate of Mr. Barlow, who died without children, should not be collected until after her death.

Mr. Barlow returned to the United States and in 1811 was appointed Minister to France succeeding General John Armstrong. He died December 24, 1812, at Zarnowice, a village near Cracow, on his return from Wilna, whither he had been summoned for a conference with the Emperor Napoleon.

During Mr. Fulton's residence in England and France, he commanded the finest scientific, artistic, literary, and diplomatic society. After going to Paris, he learned French and acquired a fair knowledge of German and Italian. He also studied higher mathematics, physics, chemistry, and perspective and such other sciences as were connected with his experiments in steam and submarine navigation and torpedoes. He had already acquired much knowledge of the steam-engine and its application to navigation, and it seems as if he were simply

waiting to be brought into relation with the right person, to evolve from his great brain the invention that has done so much for the development of his own and other lands and for the comfort and convenience of the people. At a dinner given by Mr. Barlow during Mr. Fulton's residence in his family, he sat next to Prince Talleyrand, and conversed with him at great length about his inventions, especially all he expected to accomplish with the steamboat. The Prince was charmed with Mr. Fulton's appearance and manners, and interested in his conversation, but said afterwards he was overwhelmed with sadness, for he could not but feel that he was mad.

The house in which Robert Fulton lived while in Paris, No. 50 rue Vaugirard, was occupied by General Armstrong while Minister to France, and he found the walls of the rooms used by Fulton covered with plans of steamboats he had drawn.

CHAPTER IV

THE DUCHESSE DE GONTAUT'S RECOLLECTIONS OF ROBERT FULTON

It is interesting to get a glimpse of Robert Fulton while abroad as we do in the Memoirs of the Duchesse de Gontaut. Her father, Count Montault Navailles, superintended the education of the Children of France (Louis XVI, Louis XVIII, and Charles X). She was born in 1773 and in 1793 was married to the Vicomte Gontaut Biron in London, where they had fled to escape the horrors of the French Revolution. She was a person of the highest rank and of unusual beauty, and during the Restoration was Gouvernante to the Children of France, and followed the wanderings of the Court of Charles X, after he had abdicated in favor of the Duke of Bordeaux, his grandson, the son of the Duc de Berri who was so cruelly assassinated

and who would have been known as Henri V, if the crown had not been conferred by the people upon Louis Philippe. The names of Madame de Gontaut's husband and mother were, during the French Revolution, on the list of proscribed *émigrés*, and as it became necessary for some member of the family to visit France in connection with the management of their property, Madame de Gontaut offered to go. A passport was procured which described her as Madame François, a lace merchant going to France on business. The consul from Hamburg, Mr. Schemelpeninck, it was stated, knew the parents of Madame François and would receive her cordially in case she required assistance.

Madame de Gontaut gives us the following account of Mr. Fulton. She says she saw no one on the vessel in which she crossed the Channel she had ever seen before, but states that "an Englishman came and spoke to me perceiving that I spoke both English and French, he asked me if I would not interpret for him. I promised him I would;

and he was very grateful, as he was going to France on important business." On arriving at Calais Madame de Gontaut was arrested and charged with being a rich *émigrée*, wife of a *cordons bleu*, and her passport was claimed to be false. She was taken before the Committee of Safety and put under the surveillance of Madame Grand-sire, who was proprietor of a hotel, and a bailiff was detailed to be lodged there at her expense. As she was leaving the room, "the Englishman" who had asked her to interpret for him told her the object of his journey. He proved to be Mr. Fulton, the inventor of the steamboat, and had a letter recommending him to Monsieur Barthélemy, then one of the Directors of the French Republic, which procured for him a certain consideration.

Madame de Gontaut was detained at Calais three weeks, during which she was frequently examined by the Committee of Safety. Mr. Fulton, discovering how badly she was situated and that the authori-

ties intended sending her to Paris under arrest, proposed many plans for her escape, and finally suggested that the easiest way was for her to marry him, and upon her telling him she was married already he said: "Oh, what a pity, what a pity! I would make you rich. I am going to make my fortune in Paris. I have invented a steamboat and I am going to set the whole world going. Besides I have invented a way of blowing up an enemy's fleet by means of submarine boats; nothing could be easier. And it will be quite as easy to save you; only say the word, and I will go and claim you. I will marry you and that will be the end of it."

Madame de Gontaut finally succeeded in communicating with Mr. Schemelpeninck, who secured her release. One day she was walking in Paris with her brother-in-law, the Marquis de Gontaut, when Mr. Fulton rushed up and seized both of her hands and, addressing her as Madame François, expressed his delight at seeing her. Her escort

informed him he had the honor of addressing Mademoiselle de Montault. This had been her maiden name and was assumed as a matter of prudence. Mr. Fulton said: "No, no, it is Madame François. She is married; she told me so at Calais"; and then asked to have the name repeated and wrote it on a card. He immediately commenced to talk about his object in coming to Paris,—to blow up vessels and to run boats under the water and by steam; and the Marquis, supposing him to be mad, cut the interview short.

Madame de Gontaut was afterwards at the opera in London, in the Duke of Portland's box with Lord Clarendon and several other friends, when she saw Mr. Fulton sitting in the pit. She told his story to her friends who begged her to bow graciously to him in case he looked up. He did and was so cordially greeted that he came to the box at once, and grasping her by the hand said, "Mademoiselle Montault, what a pleasure to meet you here—I could hardly believe my eyes." One of her friends said: "Monsieur

is mistaken, for Madame is the Vicomtesse de Gontaut." Fulton then said, "This is too much. She is always changing her name. It is enough to drive one mad. If there is any joke about it I would like to laugh too." Madame de Gontaut, after introducing him to her friends, made him sit down and explained the mystery of Paris, Calais, and London. He said, "I congratulate your husband on having a wife who at one time was on the point of turning my head or of sending me to the devil." This meeting with Lord Clarendon was of great use to Mr. Fulton. They saw much of each other, and before returning to the United States Mr. Fulton called upon Madame de Gontaut and thanked her for having procured for him, through Lord Clarendon, access to ministers and men of science, who appreciated him and made a trial of his steamboat on the Seine in 1802 possible.

CHAPTER V

IN FRANCE—EXPERIMENTS WITH TORPEDOES AND SUBMARINE BOAT—RETURN TO ENG- LAND

As we have learned, Mr. Fulton was dependent upon his own efforts for support, and we find him at all times ready to work. After he was settled with his friend Barlow, in partnership with him, he established the first panorama exhibited in Paris. He painted the pictures and the venture proved most successful, both partners receiving large returns. He also painted portraits, one of Mr. Barlow, an engraving of which can be found in *The Life and Letters of Joel Barlow* by Charles Burr Todd. His efforts and energies were, however, at this period turned in the direction of experiments with torpedoes and submarine navigation. In December, 1797, with Mr. Barlow, he made an

experiment on the Seine with a torpedo boat he had constructed, to impart to torpedoes loaded with gunpowder a progressive motion to a given point and there explode them. The first experiment was not successful, both of the experimenters being nearly drowned. As was always the case with Robert Fulton, he was not daunted by failure, but with renewed energy continued his experiments until he had evolved a submarine boat which could be navigated successfully and project torpedoes as proposed.

All his accumulations had been spent in these experiments and he went to France hoping to interest the French government in them. He brought from England as has been already stated a letter of introduction to M. Barthélemy, one of the members of the Directory, and soon after arriving became acquainted with M. Carnot, who was the ablest member of the original Directory and afterwards Napoleon's Minister of War, and was called by him the "Organizer of Victory." This gave Fulton

considerable advantage in his dealings with the government until the downfall of Carnot. He was listened to with interest at first and was led to expect his invention would be purchased. Greatly encouraged, he continued his experiments and spent the summer of 1800 at Havre, with the intention of trying his torpedoes on the British frigates with which that port was blockaded.

In the following winter he constructed a plunging boat and in the spring of 1801 he went to Brest, to make a trial of her. The fact that from motives of economy he had used iron instead of copper or brass in her construction hampered him on account of the rust, but he made a number of remarkable experiments. On July 3d, he descended with three companions on board to a depth of from five to twenty-five feet, and remained in darkness one hour below the surface. In his next descent he used candles but they so exhausted the air he quickly returned to the surface. On July 24, 1801, having put a window an inch and a half in diameter

near the bow of his boat, he descended and found the light sufficient to enable him to count the minutes on his watch. This boat had one mast, a mainsail, and a jib. On July 26th, he made another trial and found her sailing qualities equal to any ordinary boat. In two minutes he struck her mast and sails and plunged. He then placed two men at the engine by which she was moved and one at the helm. He managed the machine by which the boat was balanced and could do it with one hand. In seven minutes he found on coming to the surface she had moved five hundred yards. Subsequent trials demonstrated that he could turn her around under water, that she was obedient to the helm and the magnetic needle worked as well under water as on the surface. On August 7th he descended with three companions to a depth of five feet; at the expiration of one hour and forty minutes he commenced to use air from a reservoir he had taken with him, and remained below four hours and twenty minutes without discomfort.

For the purpose of testing his torpedoes a small boat with a bomb containing twenty pounds of powder was anchored in the harbor and Mr. Fulton, having approached to within two hundred yards of her, struck her with a torpedo and blew her into atoms. During the summer of 1801 none of the British ships approached near enough to afford him an opportunity to prove what he could do with his torpedoes.

Mr. Fulton's plans had been rejected by the Directory, but a change having taken place as to one of its members, he prepared a model of his boat and presented his claim; a commission was appointed which, at the end of three months, rejected his plan. He then offered his invention to Holland through Mr. Schemelpeninck, its Minister, but it was declined. He planned a larger submarine boat which was not built on account of a lack of funds.

After Napoleon had become First Consul and had been victorious in Italy, Egypt, and Austria, England remained his implacable foe

and her fleets ruled the seas. An attack upon her was contemplated and in the words of the French orator, M. Riouffe, all France needed was "a fair breeze and thirty-six hours" to cross the Channel and invade with armies that had been everywhere victorious the island so long and successfully guarded by Lord Nelson and the British tars. This situation was appreciated by Mr. Fulton, who, feeling sure of the success of steam navigation, offered the result of his researches and experiments in that line to the French government. In 1801 he wrote to the First Consul in these words: "The sea which separates you from your enemy gives him an immense advantage over you. Aided in turn by the winds and the tempests, he defies you from his inaccessible island. I have it in my power to cause this obstacle which protects him to disappear. In spite of all his fleets, and in any weather, I can transport your armies to his territory in a few hours, without fear of the tempests and without depending upon the winds. I am prepared to submit my

plans." A commission, composed of Volney, La Place, and Monge, was appointed from the Academy of Sciences to investigate the proposal, which was rejected as to the steam-boat, but an allowance of ten thousand francs was made for experimenting with the plunging boat. Mr. Fulton demanded as pay the cost of his boat—called the *Nautilus*,—forty thousand francs, from which the sum of ten thousand francs allowed by the government was to be deducted; prize money for each vessel destroyed, and an official recognition of himself and his men as belligerents, so that they would not be hung as pirates if captured. He convinced the commission of his ability to accomplish what he proposed, but the Minister of Marine, Admiral Pleville-le-Pelley, and the Maritime Prefect at Brest, M. Caffarelle, insisted it would be impossible to give commissions to men using such appliances in war, as they would surely be hung if captured, and his plans were rejected.

When Robert Fulton first visited France,

the atrocities and horrors of the Revolution were over and the recollection of them was dimmed by the bright days of freedom which seemed to have dawned on the land that had been for centuries ruled by despots and plundered by a privileged class. He was filled with enthusiasm, but a closer acquaintance with those in authority and the accession of Napoleon to the office of First Consul and his high-handed manner of doing things convinced him his hopes were groundless, and that the people of France had exchanged one despot for another. He no longer felt called upon to aid her with his inventive skill, and possibly incensed by the scant courtesy with which the First Consul had treated him, he looked elsewhere.

His experiments with his submarine boat and torpedoes had attracted the attention of the British government and caused great uneasiness. An association was formed in 1803 by Lord Stanhope to obtain information upon the subject. In a secret session of the House of Lords, Lord Stanhope stated that sub-

marine navigation had been so perfected in France by Robert Fulton as to render the destruction of ships absolutely sure. In the summer of 1803, Lord Sidmouth, who was Prime Minister, communicated with Mr. Fulton and arranged for him to meet an agent of the British government at Amsterdam. He went there in October and waited three months, and the British agent failing to come, he returned to Paris. The agent came later to Paris, bringing a letter which invited Mr. Fulton to come to London and held out sufficient inducements, and in May, 1804, he went there. Mr. Pitt had succeeded Lord Sidmouth in office and in a short time after Mr. Fulton's arrival he granted him a personal interview. After displaying and explaining his drawings, Mr. Pitt remarked that if the torpedo was introduced it could not fail to annihilate all military marines. A commission was appointed to examine the invention and report. They decided that the submarine boat was impracticable and advised testing

the torpedo. An attempt made to blow up the French fleet in the harbor of Boulogne was unsuccessful.

In October, 1805, a brig of two hundred tons, furnished for the experiment, was destroyed by a torpedo in the presence of the Prime Minister and a large number of naval officers. The ministry, after deliberating some time, decided it would be impolitic for the greatest maritime power to introduce a system of warfare that would put her on a level with other nations and suggested that the inventor would be amply compensated if he would consent to have his invention suppressed. This Mr. Fulton declined to do, stating his inventions would always be at the service of his country if needed. It appears that Mr. Fulton was to have received £40,000 if successful, but having been only partly so he was treated with liberality, for in October, 1806, he wrote Mr. Barlow he had been allowed on an arbitration £10,000 and a salary of £5000.

CHAPTER VI

ROBERT FULTON AND CHANCELLOR LIVINGSTON
MEET IN PARIS—THEY EXPERIMENT WITH
STEAMBOATS AND FORM PARTNERSHIP—
FULTON RETURNS TO ENGLAND AND SAILS
FOR UNITED STATES

CHANCELLOR ROBERT R. LIVINGSTON, who was a great-grandson of Robert Livingston, the first Lord of the Manor of Livingston, was appointed Minister to France by President Jefferson in 1801. While in Paris he met Robert Fulton, and the congeniality of their tastes and similarity of their pursuits soon established an intimacy between them. The Chancellor, in addition to being a man of large fortune, and belonging to an opulent, influential family, several of whose members had especially distinguished themselves, had filled high official positions and possessed great political power. He was

a man of much cultivation with a decided turn towards scientific researches. He had investigated the application of steam to navigation in 1797, and employed one Nesbit to construct in a bay in the Hudson River just south of Tivoli a steamboat. In March, 1798, he obtained from the legislature of New York a grant of the exclusive right to navigate by steam the waters within the limits of the State for twenty years, provided he should produce and keep running at regular and convenient intervals a boat of the average speed of not less than four miles an hour. The passage of this bill was easily secured, although many of the members of the legislature considered it rather a disrespect to and trifling with the law-making power to request them to enact a law the enforcement of which seemed so improbable. The boat constructed by the Chancellor was of thirty tons but proved to be deficient in speed. He however continued his efforts to solve the problem. He wrote to Thomas Jefferson several letters upon the subject.

Mr. Fulton, after their meeting in Paris, having disclosed to Mr. Livingston his discoveries and experiments in regard to the steamboat, which were those about which he had corresponded with Lord Stanhope in 1793, entered into an agreement with him to make further experiments. Some made at Plombières on a little rivulet which runs through that village with a set of ingenious models he had constructed during the summer of 1802, convinced both Fulton and Livingston of the superiority of the paddle-wheel over all other devices. Mr. Fulton prepared a working model of an intended steamboat which he deposited with a commission of French savants. The boat was completed early in 1803, at the joint expense of Fulton and Livingston. When all was ready for the experiment, Mr. Fulton was aroused from his bed one morning and informed that the boat had broken in pieces and sunk to the bottom of the Seine. He rushed to the place and found that the boat, not having been built strongly enough for its machinery,

had broken in two and sunk. He immediately went to work and after twenty-four hours of effort, part of which he was in the icy water, without rest or refreshment, succeeded in raising her. The machinery was little injured but the boat had to be almost entirely rebuilt, and was completed in July, 1803. She was sixty-six feet long by eight feet wide and was successfully operated, but did not meet expectations as to speed. This the inventors claimed was due to lack of power in the engines. They were, however, so pleased with the result, Mr. Fulton's proposition to the French government having been rejected, an agreement was entered into between him and Chancellor Livingston under which Fulton was to return to the United States and continue experimenting and Livingston was to furnish the funds required and procure all necessary legislation.

The *Recueil Polytechnique des Ponts et Chaussées*, Paris, 1803, contains the following account of one of their experiments:

“On the 21st Thermidor [9 August, 1803], a trial was made of a new invention, of which the complete and brilliant success should have important consequences for the commerce and internal navigation of France. During the past two or three months there has been seen at the end of quay Chaillot a boat of curious appearance, equipped with two large wheels, mounted on an axle like a chariot, while behind these wheels was a kind of large stove with a pipe, as if there was some kind of a small fire engine (*pompe à feu*) intended to operate the wheels of the boat. Several weeks ago some evil-minded persons threw this structure down. The builder, having repaired this damage, received, the day before yesterday, a most flattering reward for his labor and talent.

“At six o’clock in the evening, aided by only three persons, he put his boat in motion, with two other boats attached behind it, and for an hour and a half he produced the curious spectacle of a boat moved by wheels, like a chariot, these wheels being provided

with paddles or flat plates, and being moved by a fire engine.

“In following it along the quay the speed, against the current of the Seine, appeared to us about that of a rapid pedestrian, that is, about 2400 toises an hour; while in going downstream it was more rapid; it ascended and descended four times from Les Bons-Hommes as far as the pump of Chaillot; it was manœuvred with facility, turning to the right and left, came to anchor, started again, and passed by the swimming school.

“One of the boats took to the quay a number of savants and representatives of the Institute, among whom were Citizens Bossut, Carnot, Prony, Perrier, Volney, etc. Doubtless they will make a report which will give to this discovery all the *éclat* which it merits; for this mechanism, applied to our rivers, the Seine, the Loire, and the Rhone, will have most advantageous consequences upon our internal navigation. The tows of barges which now require four months to come from Nantes to Paris, would arrive

promptly in ten to fifteen days. The author of this brilliant invention is M. Fulton, an American and a celebrated mechanic."

The day before the trial of his boat on the Seine Mr. Fulton wrote to Messrs. Boulton & Watt of Birmingham, England, the following letter:

"PARIS, the 6th of August, 1803.

"MESSRS. BOULTON & WATT, BIRMINGHAM:

"GENTLEMEN—If there is not a law which prohibits the exportation of steam engines to the United States of America, or if you can get a permit to export parts of an engine, will you be so good as to make me a Cylinder of a 24 horse power double effect, the piston making a 4 foot stroke.

Also the piston and piston rod,

The Valves and movements for opening and shutting them

The air pump piston and rod

The condenser with its communications to the cylinder and air pump.

"The bottom of the cylinder cast in form as in the drawing and the dispositions of

the parts as near as possible as they stand in the drawing. The other parts can be made at New York, and as it will save the expense of transport, and they require a particular arrangement which must be done while I am present, I prefer having them done there. Therefore, if it is permitted to export the above parts, you will confer on me a great obligation by favouring me with them, and placing me the next on your list. When finished please to pack them in such a manner as not to receive injury, and send them to the nearest port which I suppose is Liverpool, to be shipped for New York to the address of Brockholst Livingston Esqre.] The Amount of the expenses will be placed to your order in the hands of Mr. George Wm. Erving, American Consul, Nicholas lane, Lombard Street, No. 10, London.

“The situation for which this engine is designed and the machinery which is to be combined with it, will not admit of placing the Condensor under the cylinder as usual, but I hope the communicating tube to the con-

densor, will not render the condensation less perfect, or Injure the working of the engine.

“Should you find a difficulty in getting a permit to export the parts above mentioned, I hope to be able to obtain it through our Minister Mr. Monroe. And as there is some difficulty in passing letters to and from Paris and Birmingham, which may lose much time, You will be so good as to furnish me the above parts as soon as possible without waiting to hear further from me.

“Please to write me as soon as possible under cover to Mr. Erving as before mentioned, in which I beg you to Answer the following Questions:—

“What must be the size of the boiler for such an engine? How much space for the water, and how much for the steam? What is the most improved method of making the Boiler, and economic mode of setting it? How many pounds of coal will such an engine require per hour, and what is the expence at Birmingham?

“Can you inform me what is the difference

in heating with coals or wood, As in most cases wood must be used in America, And must not the furnace be made different when wood is to be used?

“What will be the consequence of condensing with water a little salt? As in the place where the engine is to work the water is brackish?

“What will be the Interior and exterior diameter of the cylinder, and its length, and what will be the Velocity of the piston per second? This information will enable me to combine the other parts of the machinery.

“When can the engine be finished, and how much will be the expence? Your favouring me with the execution of this order, and answering the above questions, will very much oblige your most Obedient,

“ROBERT FULTON.

“RUE VAUGIRARD No. 50 à PARIS.

“Can the position and arrangement of the Cylinder Condensor and air pump be adhered to, as in the drawing, without Injuring the working of the engine?”

This letter was enclosed in a sheet on which was the drawing mentioned; . . . The manuscript note reiterates the instructions in the letter.

This order was declined in a letter dated October 4, 1803, Boulton & Watt having been unable to obtain the permission to export required.

After the signing of the treaty of Amiens in March, 1802, under which negotiations for peace were made, Mr. Fulton seems to have interested himself especially in the steamboat, and early in 1803 he had made another proposal to the French government. Citizens Molar, Bandell, and Montgolfier (the inventor of the hot air balloon) were appointed commissioners to investigate.

The following is a letter to them from Robert Fulton:

“PARIS, 4 Pluviose, Year XI.

“[25 January, 1803.]

“ROBERT FULTON TO CITIZENS MOLAR,
BANDELL, AND MONTGOLFIER.

“FRIENDS OF THE ARTS.—I send you here-

with sketch designs of a machine which I am about to construct with which I propose soon to make experiments upon the towing of boats upon rivers by the aid of fire engines. My original object in attempting this was to put it in practice upon the great rivers of America where there are no roads suitable for hauling nor indeed are any hardly practicable, and where, in consequence, the cost of navigation by the aid of steam would be put in comparison with the labor of men and not with that of horses as in France.

“You can see that such a discovery, if successful, would be infinitely more important in America than in France where there exist everywhere roads suitable for hauling, and companies established for the transport of merchandise at such moderate charges that I doubt very much if a steamboat, however perfect it might be, could be able to gain anything over horses for merchandise. But for passengers it is possible to gain something because of the speed.

“In these plans you will find nothing new, since this is not the case with paddle wheels, an appliance which has often been tried and always abandoned because it was believed that it had a disadvantageous action in the water. But, after the experiments which I have made already I am convinced that the fault is not in the wheel, but in the ignorance concerning its proportions, its speed, the power required, and probably in the mechanical combination.

“I have proved by very accurate experiment that paddle wheels are much to be preferred to bands of paddles, and in consequence, although the wheels are not a new application, yet nevertheless I have combined them in such a manner that a large portion of the power of the engine acts to propel the boat in the same way as if they rolled upon the ground; the combination is infinitely better than anything which has as yet been done up to the present time, and it is in fact a new discovery.

“For the transport of merchandise I pro-

pose to use a boat with an engine arranged to draw one or several loaded barges, each one so close to the preceding one that the water cannot flow between to make resistance. I have already done this in my patent for small channels, and this is indispensable for boats moved by fire engines.

“Suppose the boat A, with the engine, presents to the water a face of 20 feet, but inclined at an angle of 50 degrees, it will be necessary to have a machine of 420 pounds power making 3 feet per second to move one league per hour in still water. If the boats B and C have their faces parallel to that of A they will each also require a force of 420 pounds, that is to say 1200 pounds for the three, while if they are connected in the manner in which I have indicated, the force of 420 will suffice for all, and this great economy of power is too important to be neglected in such an undertaking.

“CITIZENS:

“When my experiments are ready I shall have the pleasure to invite you to see them,

and if they are successful I reserve the privilege of presenting my labors to the republic or of taking for them such advantages as the law may authorize. At the present time I place these notes in your hands in order that if any similar project comes before you before my experiments are completed, they shall not have the preference over mine.

“With respectful salutations,

“ROBERT FULTON.

“NO. 50 RUE VAUGIRARD.”

On Mr. Fulton's arrival in England in 1804, he went to Birmingham and made some new specifications for the work. In September, 1806, Mr. Fulton wrote to his friend Barlow, who was then in the United States, that he was about sailing for home and “that the produce of my studies and experience may not be lost to my country, I have made out a complete set of drawings and descriptions of my whole system of submarine attack, and another set of drawings with description of the steamboat.

These, with my will, I shall put in a tin cylinder, sealed, and leave them in the care of General Lyman, not to be opened unless I am lost."

The vessel by which the cylinder was sent to this country was wrecked, but the cylinder was recovered; its contents, however, were badly damaged by the sea water, some being entirely illegible and others deciphered only with great difficulty.

Mr. Fulton sailed from Falmouth in October, 1806, and arrived in New York via Halifax December 13th.

CHAPTER VII

ARRIVES IN NEW YORK—EFFORTS TO RAISE MONEY FOR BUILDING STEAMBOAT

ROBERT FULTON's return to his native land must have filled him with many emotions. He had sailed away to seek his fortune twenty years before, and in that period had elevated himself from a position of obscurity to one of eminence. He had worked hard, his ambition had spurred him on to great achievements. He had through his talents been brought into relations with scientists and statesmen and had interested them in his inventions and associated with persons of distinguished rank, and attracted and charmed them all with his ability, earnestness, enthusiasm, appearance, and manners. He had gone forth friendless and had returned possessing the confidence of some of the foremost men in

his own and other lands. There seemed to be nothing more needed to crown his efforts except opportunity, health, and years. Chancellor Livingston,—with whom he had entered into partnership in Paris and by whom he was induced to return to the United States,—after the signing of the Louisiana Purchase treaty, which had been chiefly effected through his diplomacy, in December, 1804, left Paris and having travelled extensively in Europe and England, returned to the United States. He had every temptation to lead a life of leisure, but such a thing would have been impossible for a man of his active temperament. The plans formed by him and Robert Fulton in Paris received his constant attention and on the arrival of Mr. Fulton in New York, the latter found matters in such condition that he was able to proceed with his undertaking at once.

The vessel with which he would soon startle the world had been already commenced according to the plans agreed upon in Paris, and the machinery from which her engine

was to be constructed had already arrived. Mr. Fulton devoted himself to the work with characteristic energy and enthusiasm, and after the machinery had been removed from the storehouse where it had been held for some time waiting for the Chancellor to pay the charges, the work went on rapidly.

From time to time Chancellor Livingston is giped at in newspaper reminiscences and so-called historical articles in magazines, for the reason that he did not always appear to have ready cash to proceed with his steamboat venture. We have become so accustomed in these days to millionaires and to hearing of enormous undertakings the successful carrying out of which required great expenditures of ready money, that we forget how little cash was possessed by any one in the United States one hundred years ago. The Chancellor and his family owned large tracts of land the revenues from which enabled them to live in a manner befitting their fortune and station but it is very doubtful if any of them had much

ready money. This fact did not deter him from pushing the work on his steamboat as rapidly as he could. There were times while the first steamboat was being constructed when it seemed as if the enterprise would have to be abandoned on account of the lack of funds, which, however, always seemed to come, although as the result of earnest efforts and at the end of anxious hours.

Robert Fulton did his share towards raising the necessary money. In view of the success of Fulton's invention, one cannot fail to wonder at his experience with the capitalists who refused to assist him. The contract between the Chancellor and Mr. Fulton had provided that the former should bear the entire expense of building the vessel and the latter had agreed to assist in raising the funds necessary. Having little capital, he relied on persuading some one to join them and he interviewed several men of property and gave information such as might attract others, offering

to sell for the cash required a one-third interest in the invention, with all rights accruing, but found no one who was willing to have anything to do with such "a crazy venture" as it was called. The Chancellor, however, worked with a will and converted such property as was available into cash, and Robert Fulton went in and out among the friends he had quickly gained after his arrival, and he seemed to possess a peculiar faculty in attaching friends who had great faith in him and were unable to resist his importunities. He proved by his confidence in the undertaking and the progress which was made as the months passed his faith in the project and won unwilling and doubting helpers by his power of persuasion.

There is an anecdote that at a moment when one thousand dollars was absolutely needed, Mr. Fulton went to an intimate friend, and, after an entire evening spent in trying to convince him that his steamboat would be a success and an interview the next morning, the friend agreed to let him

have one hundred dollars, provided he could induce some of his friends to advance the remaining nine hundred. He succeeded, but with great difficulty,—the individuals who made up the balance refusing to subscribe their names, through fear lest their folly should become known. The months between Mr. Fulton's arrival in New York and the completion of the steamboat must have been full of anxiety for both him and the Chancellor. The former was driven with work upon the steamboat, besides which he devoted much time to experiments with torpedoes.

As soon as Chancellor Livingston had entered into business relations with Mr. Fulton, he procured the passage of an act by the legislature of New York, which renewed the rights given him under the act of 1798 (see *ante*, page 41) and granted him and Robert Fulton jointly the exclusive right to navigate the waters of the State of New York with vessels moved by steam for twenty years, provided they produced within two years a

boat of not less than twenty tons burden which could attain to a speed of four miles an hour against the current. The Chancellor obtained renewals of this act from time to time until he and Mr. Fulton were prepared for their experiment.

CHAPTER VIII

RECEIVED WITH HOMAGE — EMPLOYED BY
FEDERAL GOVERNMENT TO EXPERIMENT
WITH TORPEDOES—TRIAL TRIP OF THE
CLERMONT

As soon as Mr. Fulton arrived in New York he found that his inventions had aroused much curiosity and given him a position of great distinction. He was received by Chancellor Livingston and his family and by the principal people of the place with most marked attention, and wherever he went he was surrounded with crowds anxious to see the man who was attempting to do such great things in navigation and warfare. His experiments with torpedoes seem to have especially interested the public and on the advice of friends he soon visited Washington and presented his plans to the au-

thorities. They were received with so much approval that an appropriation was made to enable him to continue his experiments. On his return to New York he delivered a lecture upon the subject of submarine explosives to which he invited the officials and chief citizens. He was listened to with marked interest, and his audience displayed much curiosity concerning the copper cylinders and clockwork composing the machines. This, however, was turned to consternation and a hurried flight from the room when the lecturer drew from one of the torpedoes a peg and informed them that it was charged with one hundred and seventy pounds of powder, and if he allowed the clock attached to run fifteen minutes longer they would all be blown to atoms. After replacing the peg and stopping the clock, Mr. Fulton had great difficulty in re-assembling his audience.

On July 20, 1807, he attempted to blow up the hulk of a brig furnished by the United States government. The experiment was at first a failure, the machinery not acting

as was expected, the test having been made without the locks which when attached threw the torpedoes out of balance. It is not to be wondered at that this small detail should have escaped the vigilance of the inventor when we consider how much there must have been on his mind. After a delay of several hours this defect was remedied, the explosion took place and the brig was destroyed as advertised, but not until after the crowd that had assembled to witness it had dispersed.

The steamboat, over which he had labored for so many years, on the construction of which he had staked his all, and in which one of his best and truest friends had risked his possessions and with which he hoped to benefit all humanity and receive as a reward undying fame and a fortune far beyond the dreams of avarice, was approaching completion. It was built at the shipyard of Charles Brown on the East River, and early one morning in August, 1807, without any announcement, sailed around and over to

the New Jersey shore. This little voyage was satisfactory in every way and Messrs. Fulton and Livingston were overjoyed at their success.

On the 7th of September following the first trial trip was made. Invitations had been extended to the high officials and friends of Mr. Fulton and the Chancellor and those who had assisted with funds and political services in procuring what was supposed to be the necessary legislation. An announcement was also made in the newspapers that the boat built by Messrs. Livingston and Fulton, with a view to the navigation of the Mississippi River from New Orleans upwards, would depart for Albany in the afternoon. It was not then supposed that steamboats could be profitably run between New York and Albany. In consequence a large crowd assembled to witness what most of them believed would be a failure. The boat was built of wood and was one hundred and thirty feet long, sixteen and a half feet wide, and seven

feet deep. Her engine had a cylinder of two feet diameter with four feet stroke of piston. The boiler was twenty feet long, seven feet deep, and eight feet wide; the paddle-wheels fifteen feet in diameter with floats four feet long having a dip of two feet. Her capacity was one hundred and sixty tons and she was named the *Clermont* in honor of Chancellor Livingston's estate on the Hudson.¹ She was provided with large square sails attached to masts that could be raised or lowered according to the strength of the wind. The boiler was constructed of wood bound with heavy iron bands, the heat from which when the steam was up caused the wood under them to shrink while the spaces between the bands swelled so that open spaces were produced through which the steam escaped. This was remedied in part by covering the boiler with blankets and carpets.

The fuel used was seasoned pine wood

¹ I find a singular disagreement as to the measurements of the *Clermont* and am indebted to Robert Fulton Ludlow, Esquire, a grandson of the inventor, for those given.—P. F. M.

and the smokestack of the vessel was much longer than those now used, in order to create a sufficient draught. Her course was marked by a column of dark smoke through which flames flashed, and, when the fire was stirred, a tremendous shower of sparks.

After the *Clermont* had proceeded a few miles on her trial trip, which she did to the astonishment of the spectators and the satisfaction of those interested in the experiment, Mr. Fulton observed that the vessel was retarded by her paddle-wheels dipping too deeply in the water and that her speed could be increased by reducing the diameter of the buckets of the paddle-wheels. The *Clermont* returned to her dock and in a few days the alterations were made and upon another trial trip her speed was much increased.

CHAPTER IX

FIRST VOYAGE OF THE CLERMONT TO ALBANY —LETTERS OF FULTON—DESCRIPTION OF THE CLERMONT

BETWEEN the 7th and 11th of September, 1807, the *Clermont* started on her first voyage to Albany. It was a continuous triumph. Her coming was beheld by those gathered upon the river banks and employed in boats on its surface with awe amounting almost to terror. The black fire-streaked cloud which came from her funnel by day, during the hours of darkness became a trail of fire. She reached Albany in thirty-two hours of sailing, having stopped at the dock at Clermont about two miles north of Tivoli for the purpose of landing Chancellor Livingston and to take on fuel—the voyage being resumed the next day. The first voyage of the *Clermont* to Albany was not referred to in the

New York *Evening Post* on the day she sailed or afterwards, until the day after her safe return, when a letter from Robert Fulton to the *American Citizen* (which is given below) was printed.

The following letters of Robert Fulton are sure to interest the reader:

“NEW YORK, Sept. 15, 1807.

“To the Editor of the *American Citizen*,

“SIR:—I arrived this afternoon, at four o'clock, in the steamboat from Albany. As the success of my experiment gives me great hopes that such boats may be rendered of great importance to my country, to prevent erroneous opinions and give some satisfaction to the friends of useful improvements, you will have the goodness to publish the following statement of facts:

“I left New York on Monday at one o'clock, and arrived at Clermont, the seat of Chancellor Livingston, at one o'clock on Tuesday—time, twenty-four hours, distance one hundred and ten miles. On Wednesday I departed from the Chancellor's at nine

in the morning, and arrived at Albany at five in the afternoon—distance, forty miles, time, eight hours. The sum is one hundred and fifty miles in thirty-two hours, equal to near five miles an hour.

“On Thursday, at nine o’clock in the morning, I left Albany, and arrived at the Chancellor’s at six in the evening: I started from thence at seven, and arrived at New York at four in the afternoon—time, thirty hours, space run through, one hundred and fifty miles, equal to five miles an hour. Throughout my whole way, both going and returning, the wind was ahead; no advantage could be derived from my sails: the whole has, therefore, been performed by the power of the steam-engine.

“I am, sir, your obedient servant,

“ROBERT FULTON.”

LETTER FROM ROBERT FULTON TO
JOEL BARLOW

“My steamboat voyage to Albany and back has turned out rather more favorable than I had calculated. The distance from

New York to Albany is one hundred and fifty miles: I ran it up in thirty-two hours, and down in thirty. I had a light breeze against me the whole way, both going and coming, and the voyage has been performed wholly by the power of the steam-engine. I overtook many sloops and schooners beating to windward, and parted with them as if they had been at anchor.

“The power of propelling boats by steam is now fully proved. The morning I left New York, there were not perhaps thirty persons in the city who believed that the boat would ever move one mile an hour, or be of the least utility; and while we were putting off from the wharf, which was crowded with spectators, I heard a number of sarcastic remarks. This is the way in which ignorant men compliment what they call philosophers and projectors.

“Having employed much time, money, and zeal, in accomplishing this work, it gives me, as it will you, great pleasure to see it fully answer my expectations. It will

give a cheap and quick conveyance to the merchandise on the Mississippi, Missouri, and other great rivers, which are now laying open their treasures to the enterprise of our countrymen; and although the prospect of personal emolument has been some inducement to me, yet I feel infinitely more pleasure in reflecting on the immense advantage my country will derive from the invention," etc.

LETTER FROM ROBERT FULTON TO CHANCELLOR LIVINGSTON

"NEW YORK.

"DEAR SIR:—On Saturday I wrote you that I arrived here on Friday at four o'clock, which made my voyage from Albany exactly thirty hours. We had a little wind on Friday morning, but no waves which produced any effect. I have been making every exertion to get off on Monday morning, but there has been much work to do—boarding all the sides, decking over the boiler and works, finishing each cabin with twelve berths to make them comfortable, and strengthening many parts of the iron work.

So much to do, and the rain, which delays the caulkers, will, I fear, not let me off till Wednesday morning. Then, however, the boat will be as complete as she can be made—all strong and in good order and the men well organized, and I hope, nothing to do but to run her for six weeks or two months. The first week, that is if she starts on Wednesday, she will make one trip to Albany and back. Every succeeding week she will run three trips—that is, two to Albany and one to New York, or two to New York and one to Albany always having Sunday and four nights for rest to the crew. By carrying for the usual price there can be no doubt but the steamboat will have the preference because of the certainty and agreeable movements. I have seen the captain of the fine sloop from Hudson. He says the average of his passages have been forty-eight hours. For the steamboat it would have been thirty certain. The persons who came down with me were so much pleased that they said were she established to run

periodically they never would go in any thing else. I will have her registered and every thing done which I can recollect. Every thing looks well and I have no doubt will be very productive.

“Yours truly,

“ROBERT FULTON.”

The *Clermont's* trips between New York and Albany were continued with regularity until the close of navigation. She carried all the passengers she could accommodate and but for a few minor accidents had a successful season.

The following is the tariff of prices, for “Provisions, good berth and accommodations”:

“To Newburgh,	14	hours,	Fare,	\$3.00
“ Poughkeepsie,	17	“	“	4.00
“ Esopus,	20	“	“	5.00
“ Hudson,	30	“	“	5.50
“ Albany	36	“	“	7.00”

All passengers not bound to regular landings were charged one dollar for every twenty

miles and no one was allowed to come on board or to be put ashore for less than a dollar fare.

The following is a description of the *Clermont* by Professor Renwick as she appeared on her first voyage to Albany:

“She was very unlike any of her successors, and very dissimilar from the shape in which she appeared a few months afterward. With a model resembling a Long Island skiff, she was decked for a short distance at stem and stern. The engine was open to view, and from the engine aft a house like that of a canal-boat was raised to cover the boiler and the apartment for the officers. There were no wheel-guards. The rudder was of the shape used in sailing-vessels, and moved by a tiller. The boiler was of the form then used in Watt’s engines, and was set in masonry. The condenser was of the size used habitually in land engines, and stood, as was the practice in them, in a large cold-water cistern. The weight of the masonry and the great capacity of the cold-water

cistern diminished very materially the buoyancy of the vessel. The rudder had so little power that she could hardly be managed. The skippers of the river craft, who at once saw that their business was doomed, took advantage of the unwieldiness of the vessel to run foul of her as soon as they thought they had the law on their side. Thus, in several instances, the steamer reached one or the other terminus of the route with but a single wheel."

CHAPTER X

THE CLERMONT REBUILT AND NAME CHANGED TO THE NORTH RIVER—FURTHER LEGIS- LATION

AT the close of navigation in 1807, the *Clermont* was taken to what was then called Lower Red Hook, the bay south of Tivoli, and ship carpenters from Hudson enlarged her, a new boiler made of heavy sheet copper was put in, and other alterations made so that about May 1, 1808, she was launched and called the *North River*. She had been made more comfortable and lengthened to one hundred and forty feet, the shafts of her wheels, which were of cast iron and had proved incapable of sustaining the weight to which they were subjected, had been replaced with shafts of wrought iron which were supplied with wheel-guards or

outer supports. Her machinery was fitted at the dock at the foot of Dey Street, which was at that time far uptown.

By an act of the Legislature of 1807-8 the exclusive privilege of navigating by steam the waters of the State granted to Livingston and Fulton was extended for five years for each additional boat built and put in use, provided the time should not exceed thirty years from its passage. This act also provided that combinations to destroy the *Clermont* or any other steamboat, or wilful attempts to injure her were public offences punishable by fine and imprisonment.

While this newly invented steamboat was regarded with curiosity by all and hailed as a great accommodation by those whose business engagements and inclinations demanded swift and frequent trips between New York and Albany, those who were otherwise interested and engaged in river transportation could not but regard her as a dangerous competitor and during her voyages many attempts were made

to injure her. Vessels ran into her intention-ally and her progress was impeded as much as the river men dared.

The following letter is from Robert Fulton to the captain of the *Clermont*.

“NEW YORK, Oct. 9, 1807.

“CAPT. BRINK, SIR:—Inclosed is the number of voyages which it is intended the boat should run this season. You may have them published in the Albany papers. As she is strongly made and every one except Jackson under your command you must insist on each one doing his duty, or turn him on shore and put another in his place. Everything must be kept in order—everything in its place, and all parts of the boat scoured and clean. It is not sufficient to tell men to do a thing, but stand over them and make them do it. One pair of good and quick eyes is worth six pair of hands in a commander. Let no man be idle when there is the least thing to do and make them move quickly. Run no risque of any kind; when you meet or overtake vessels beating or

crossing your way, always run under their stern, if there be the least doubt that you cannot clear their head by 50 yards or more.

“ Give the amount of receipts and expenses every week to the Chancellor.

“ Your most obedient,

“ ROBERT FULTON.”

CHAPTER XI

PATENTS—LIVINGSTON CONCEDES TO FULTON
THE INVENTION OF SUCCESSFUL STEAM-
BOAT—LITIGATION AS TO PATENTS—
BOATS SAILING HUDSON AND THEIR SPEED
—FERRYBOATS

Soon after the construction of the *Clermont* was begun Mr. Fulton had applied for patents. As the work progressed he made improvements which were not covered by the applications already filed. His first patent is dated February 11, 1809, and on February 9, 1811, he took out another patent for improvements. The *Clermont* had been open to the inspection of the public, and patents were applied for by various persons for improvements on which patents had already been issued to Robert Fulton. It had been agreed between him and Chancellor

Livingston that the patents should be issued in Mr. Fulton's name, which could not have been done unless he swore the invention and improvements were solely his. In volume two of the *American Medical and Philosophical Register*, pages 260-262, Mr. Livingston, in "An Historical Account of the Application of Steam for the Propelling of Boats," acknowledges that all his efforts to successfully invent a steamboat had been unavailing, explains the nature of the partnership between him and Mr. Fulton, and shows what part the latter took in the experiments. A brief account is then given of what had been accomplished and to what extent the invention had been used.

Mr. Fulton and the Chancellor found themselves overwhelmed with litigation over infringements of their patents and harassed by the competition of rival boats which were to have been propelled by a pendulum. When this was shown to be impracticable, steam and the machinery of the boats run

by Mr. Fulton were very coolly adopted. There seems to have been, as is almost always the case with profitable inventions, an attempt on the part of men of high standing and great influence to rob the inventor of the credit and profit his genius and patient effort had won. In 1811 the legislature passed an act providing for summary remedies for violations of Livingston and Fulton's rights to the exclusive navigation of the waters of the State with boats moved by steam as they then existed, but exempted from its provisions two boats then running on the Hudson River and one on Lake Champlain, on the ground that the act as to those vessels would be *ex post facto*.

Chancellor Livingston and Mr. Fulton applied to the Circuit Court of the United States for an injunction restraining those vessels. This application was denied on the ground that the court lacked jurisdiction. Resort was then had to the Court of Chancery of the State and the application was denied;

an appeal was then taken to the Court of Errors, which for such an appeal was composed of the Senate and five judges of the Supreme Court. There, in the winter of 1812, the decision of the Court of Chancery was unanimously reversed and a perpetual injunction ordered.

In 1808 a second vessel of about three hundred tons was built by Mr. Fulton and the Chancellor called the *Car of Neptune*. In less than two years from the first voyage of the *Clermont* a regular service between New York and Albany had been established.

The *Paragon* was built in 1811—331 tons. In 1813 a boat left New York for Albany every Tuesday, Thursday, and Saturday afternoon at five o'clock. Before 1817, the time consumed in making a voyage between the two cities was reduced to eighteen hours.

After 1820 the old boats were withdrawn and new and more commodious ones replaced them. After the expiration of the exclusive right granted to Livingston and Fulton, great improvements were made.

In 1826 there was a daily service established and the time had been lessened to fifteen hours and competition had brought about considerable reduction in the fares. In 1836 a trip was made between New York and Albany in ten hours and twenty minutes; in 1840 in eight hours and twenty-seven minutes; in 1841 in seven hours and twenty-eight minutes; in 1862 in six hours and fifty-one minutes; and in 1864 in six hours and fifty minutes.

The change that has taken place in the size of the boats on the Hudson River, on the ocean, and in fact wherever steamboats are used, and in the comfort and luxury of their appointments and accommodations would scarcely be realized. The last boat launched upon the Hudson, the *Hendrick Hudson*, which made her first voyage in August, 1906, is an example.

In 1811 and 1812 Mr. Fulton built two steam ferryboats for the North River and one for the East, each of which consisted of two complete hulls united by a deck or

bridge, both ends being sharp, thus presenting less resistance than a boat of much less beam. Each had a rudder, so that no time was lost in turning about. Each boat had a beam of ten feet, a keel eighty feet long, and five feet hold. They were separated ten feet and confined by strong transverse beam knees and diagonal traces, a deck being thus formed thirty feet wide and eighty feet long. The propelling wheel and all the other machinery were placed between the boats and a deck ten feet wide on either side was left for vehicles, horses, and cattle. Floating docks were built to receive these boats much like those now in use at our ferry landings.

CHAPTER XII

EXPOSURE OF PERPETUAL MOTION FRAUD—
BRITISH ATTEMPT TO CAPTURE FULTON—
CLAIM OF W. STEVENS TO INVENTION OF
SUCCESSFUL STEAMBOAT DENIED.

MR. FULTON'S keenness in regard to machinery is illustrated by his experience with a perpetual motion machine which was exhibited in New York in 1813. For some time he could not be persuaded to go and see it, although crowds had visited the isolated house in the suburbs in which it had been placed. He finally consented to go, paid the admission fee of one dollar, and after he had been a short time in the room in which the machine was, said, "Why this is a crank motion," his trained ear having detected an unequal velocity in the revolutions of the wheels. After a brief conver-

sation with the person having the machine in charge, he told him he was an impostor and that his machine was kept in motion by some concealed means. Mr. Fulton then informed those present that the machine was a fraud and if they would support him, he would expose it or pay the damages. Everybody consenting, he knocked away some laths which extended from the machine to the walls of the room, apparently to steady the machine. A string of catgut was exposed connected with the machine and running through the wall to a loft several yards away, where an old man was found turning a crank as Mr. Fulton had suggested. The crowd present immediately destroyed the machine and the exhibitor fled.

During the war of 1812 with Great Britain, when our ports were menaced and often blockaded by the armed ships of the enemy, the reputation Mr. Fulton had established throughout the world as an inventor of submarine boats and torpedoes made the English wary of coming into close contact

with our ships and shores. While his inventions were avoided and watched for, a sharp lookout was kept upon the inventor and his movements, and efforts were made to capture him. On one occasion a house on the seashore at which he had been visiting was surrounded and taken possession of by the British just after Mr. Fulton had left.

The following is an extract from a manuscript in the handwriting of Robert Fulton, dated February, 1813:

“Steam boat experiments made on the river Seine near Paris by R. Fulton in the years 1802 and 1803, which being successful demonstrated the powers, proportions and velocities of the machinery to drive a given boat a given distance in a given time, which being the first time such discovery was made is in fact the date of the invention of Usefull Steamboats: for previous to the discovery no rule had been laid down to secure success. The public thought usefull steamboats impracticable and those few who were making experiments were doing

them feebly without aid or guide, groping their way like men in the dark.

“In 1806 Messrs. Livingston and Fulton offered to take W. Stevens in as a partner, he refused asserting that Mr. Fulton’s plan could not succeed. He W. Stevens in the following year attempted to make a small boat moved by high steam and Skulls, but in August 1807 seeing Mr. Fulton’s North River boat start from New York and run to Albany at the rate of 5 miles an hour with wheels and an engine of proper powers, he abandoned Skulls and put wheels to his small boat here, then after Mr. Fulton’s ocular demonstration of the simplicity and value of wheels Mr. Stevens made use of them; but previous to which he could not tell and did not know if oars, skulls, paddels, flyers like those of wind-mills were best or as good as wheels, but after seeing Mr. Fulton’s wheels he did not know their proportions and power of engine to drive the boat. He then composed in 1808 an engine with two small cylinders, hoping to do with-

out a fly wheel, and made the water wheels, about 9 feet diameter. The boiler was composed of 8 or ten small sheets from cylinders, the cylinders had not sufficient power for the boat and the diameter of the water wheels were too small—the boiler and whole plan failed and he abandoned them; all that time however Mr. Fulton's North River Steamboat was successfully running to Albany and twice a week past Mr. Stevens door at Hoboken, he then made a cylinder the same diameter as that in Mr. Fulton's boat, but six inches shorter; he constructed new wheels twelve feet in diameter and copying from Mr. Fulton all that was essential to secure success; his boat did in the summer of 1809 succeed on the Delaware. He in this year took out a patent for some unessential alterations in the combination of the machinery which has nothing to do with the success of the boat, and for a kind of floats to take a purchase on the water instead of wheels, which floats however he has never used—and

which can not be used and are in themselves sufficient proof that Mr. Stevens did not understand the subject, and could not, or at least did not, succeed but by copying Mr. Fulton. Indeed so sensible at this time of Mr. Fulton's just claim to the invention of Usefull Steamboats that he accepted of a grant from Livingston and Fulton to work under their patent on certain waters and nowhere else; of which waters the Chesapeak is the most Southward; in the preamble of the contract he acknowledges Mr. Fulton's priority and invention of Usefull Steamboats. Mr. Fulton gave to him grants which managed with address would produce him \$15,000 a year—and this is the man who would now oppose and invade the rights of his benefactor—every honest man and friend to Usefull talents will set their faces against such Unjust and illiberal conduct—the ingenuity which gives to our country inventions in a national point of view worth millions Merits its warmest support and protection,

and the pirates of mental property must be punished, or no one who has talents will exert them. The first Succesfull Steamboat which was ever put into actual and permanent Operation and which removed from the Public Mind all doubts on the practicalibilty of such Boats, was built and Navigated on Hudson River in the State of New York in the Autumn of 1807. On the 11th of February, 1809 Mr. Fulton received his patent. On the 3rd of Jan. 1810 Mr. Stevens obtained a patent not for a Steamboat, but for a Boiler and particular combination of Machinery and the before mentioned floats. Mr. Fulton's second patent, which is merely for some combinations in the machinery is dated Feb. 9th, 1811; Since Mr. Fulton has invented and proved the Utility of Steam Boats, but particularly since they are found to be profitable, many pretenders have sprung up. An Englishman by the name of Coxen, after ascerting that he had made a steam boat in England run 11 miles an hour

formed a Company with a capital of £20,000 and built a Boat at Philadelphia which could not run 1 mile an hour; his plan has totally failed; thus proving his ignorance of the subject and little respect for truth. Oliver Evans, who has Taken up the Idea of Steam Engines with high steam, and calls it a new invention, although they are mentioned In Boulton and Watt's patent 26 years ago and have had to be tried and Abandoned by the best engineers in England, Now says that he invented just Such Steam Boats as are now in use, 30 years ago—the Public certainly owes but little to this great genius who has concealed such usefull knowledge for 30 years—had he died two years ago all this part of his usefull invention would have been lost. But Oliver finds It Vastly convenient to date model inventions as his own 30 years ago, he has contrived to patent almost the whole machinery and lay a tax on the public; he has written a book of dreams on Steam—carriages, Boats etc. without showing how to

make or put either in Successfull operation. And then modestly says if anyone renders such inventions usefull they must . . . him—these are pretensions on a great scale—Hitherto however all the Steam Boats which are in operation have grown out of Mr. Fulton's Success, and in all their esential parts which constitute their success are piracies of his invention, or constructed under his licence. To Produce the first Usefull Steam Boat it required the fortunate circumstances of Adequate genius and Capital in the same person or persons, he and Mr. Livingston had both and they persevered to success—had they not done so it is a fair inferance that there would not now be a usefull Steam Boat in America or elsewhere. Away then with your Ephemeral pretenders, abortive experiments and imaginations never proved or practiced; give Livingston and Fulton the merit and reward which to them is due. This noble invention is among the highest honors and Blessings of the Nation. Since their Success a Steam Boat has been com-

menced to run from Quebeck to Montreal, one Runs on Lake Champlain to Skeensborough in state of New York. The celebrated boats of Livingston and Fulton Run from Albany to New York—The Steam Boat of Mr. John Livingston under the patent of Livingston and Fulton runs from New York to Brunswick N. J.—the boat on the Delaware, also under the patent of Livingston and Fulton runs from Trenton to Phila. Boats also under their patent and Grants are now Building to carry on the line from Philadelphia to Baltimore. Mr. Fulton is building two Boats to continue the line from Washington to Potowmack Creek and from Richmond to Norfolk—and others are in contemplation through the rivers and Bays to Camden and St. Marie's. Boats are to be Built to run from Pittsburg to Louisville, and two are building by Mr. Fulton to run on the Mississippi from Louisville to New Orleans—one is to be built to Navigate the Red River from the Mississippi to Nachedoches on the way to Mexico. So that the

prospect is that in three years from this date there will be Steam Boat Communication from Quebeck to St. Maries. Say the number of miles will not be more than number —— miles land carriage, and from Quebeck to Mexico by the way of Pittsburg say the miles will not be more than —— miles of land carriage—thus my countrymen are enterprises worthy of a great nation the result of the virtuous labours of Livingston and Fulton; where there is the honest heart, the individual proud of his country's fame who would deprive them of their honour and reward?"

CHAPTER XIII

ROBERT FULTON'S DEATH—FUNERAL—WILL

ROBERT FULTON was not the sole inventor of the steamboat. Efforts in that line had been made by various individuals, some of which had been almost successful, but it remained for him to accomplish what the others had failed to do, he applied steam to navigation in such a manner as to make it a success financially and otherwise. His achievement is not in the least belittled when we admit that his success was due largely to his association with Chancellor Livingston. The latter assisted not only with advice on a subject in regard to which he was thoroughly posted but insured success by the use of his wealth, influence, and political power.

Both he and Fulton should have received

great pecuniary rewards. It was an unfortunate error of judgment to procure their monopoly from the legislature of the State of New York, they should have applied to Congress and in all probability could quite as easily have secured the grant there. The field would have then been unlimited and no questions would have arisen as to conflict of jurisdiction.

The protection of their rights was much affected by the death of Chancellor Livingston, which occurred February 26, 1813, and which was so quickly followed by the death of Robert Fulton. The former left no son, and the latter's was not of an age to protect his father's interests, and the dreams of fortune in which both had naturally and properly indulged were never realized.

In January, 1815, Robert Fulton went to Trenton to appear before the New Jersey legislature on a petition to repeal the act which interfered with the sailing of steamboats between New York and New Jersey. The weather was unusually severe and Mr.

Fulton was obliged to wait in the legislative hall, which was badly heated, and several hours were consumed crossing the river which was blocked with ice. He caught cold and before he had fully recovered went to superintend the work on a steam frigate he was building for the United States government. He was greatly exposed, added to his cold, and on returning home became very ill and on February 24, 1815, died. His death came as a great shock to his friends and the community. No one had supposed that his life was in danger.

His remains, enclosed in a metallic coffin, covered with mahogany, on which was a plate with his name and age, were placed in the vault of his father-in-law, Walter Livingston, and of Robert C. Livingston, who were sons of Robert, the third Lord of the Manor, in Trinity churchyard in the City of New York. The grief manifested by all classes was unusual. He had become a universal favorite and his death in the midst of his triumphs and labors was regarded as

untimely and with universal sorrow. His funeral was attended by all the officials of the nation, state, and city who were then in New York, representatives of the principal societies, and a great crowd of people among whom were the most prominent citizens. As the funeral procession passed from No. 1 State Street, where he had resided with his family, to Trinity Church, minute guns were fired from the battery of the steam frigate he was engaged in building at the time of his death for the United States government. The legislature, which was then in session, passed a resolution that both houses should wear mourning for six weeks. This is the only instance in this State in which such respect has been shown on the death of a private citizen.

In 1901 a monument of granite, with a medallion of him in bronze, was erected to his memory by the American Society of Mechanical Engineers on the south side of Trinity churchyard.



ROBERT FULTON

FROM THE BRONZE ON THE MONUMENT IN TRINITY CHURCHYARD IN NEW YORK

There has been for many years a statue of Robert Fulton, with a clay model of the *Clermont*, at the entrance to Fulton Ferry, Brooklyn, New York.

His will, which was made about a month before his death, provided for an annuity of seven thousand dollars for his wife, devised the farm, purchased out his first earnings and on which he settled his mother, to one of his sisters, and disposed of a large estate. His affairs on account of litigations over infringements of his patents, and the misconduct or mistake of some of the agents he had employed to build boats under his patents, which he had contracted to furnish to other companies, were greatly involved and his wife and children were left penniless. At the time of his death the United States government owed Mr. Fulton one hundred thousand dollars for expenditures under his contracts and for the use of the vessel, the *Vesuvius*, which was owned by him, at the battle of New Orleans. Twenty years after his death, in 1835, an act was introduced in

Congress for the relief of the heirs of Robert Fulton. This was not passed until 1846, and then interest was not allowed on the amount claimed and that amount was reduced to seventy-six thousand three hundred dollars.

CHAPTER XIV

FULTON'S MARRIAGE — DESCENDANTS — DESCRIPTION OF HIM

ROBERT FULTON married in 1806 Harriet Livingston, a brilliant beauty and heiress, a daughter of Walter Livingston, who was the second son of the third Lord of the Manor and a brother of Henry who built the fine old place in Columbia County known as "The Hill." This wedding was characterized by the splendor, wealth, and rank of the Livingstons and the virile beauty, personal charm, and romantic career of this successful young inventor and man of the world. There were a son and three daughters born. The son died unmarried and at an early age. Mrs. Fulton, who had shown more than ordinary affection for her husband, removed to her father's

place, "Teviotdale," north of Germantown in Columbia County, in 1815 and resided there with her children.

Shortly afterwards she married an Englishman, Charles Augustus Dale, whose chief interest appears to have been in horses. It is related of him that, on a wager that he could drive from New York to Teviotdale, his wife's residence, a pair of horses in less time than it would take the steamboat to sail from New York to Chancellor Livingston's dock, about one hundred miles, he won, but one of his horses died almost immediately after arriving.

Mrs. Dale accompanied her husband to England where they both died. After her departure, her children by Robert Fulton were cared for and educated by the widow of her brother Henry Walter Livingston. Chancellor Livingston was not closely related to Robert Fulton's wife.

It seems as if a cruel fate had interposed to prevent the fame of Robert Fulton being preserved. His home had been broken up

and his possessions scattered, many of them passing into the hands of strangers. His seal was given to a person not a member of the Fulton family and possession of it retained for many years in spite of repeated efforts to obtain it by one of his grandsons. It was recently given to some one who promptly returned it to a member of the Fulton family. There seems to be a singular lack of delicacy or sense of justice in many people about dealing in, obtaining, and retaining possession of the heirlooms of families to which they are not in any way related.

His fine Sheraton dining table seems to have been saved from the wreck. It was for several years used as the council table of the American Society of Mechanical Engineers and is now the board room table of the Trustees of the United Engineering Building in New York City. That society also owns a water color plan by Robert Fulton for a high level canal.

The only child of Robert Fulton's daughter

Mary, Robert Fulton Ludlow, is an artist and lives in a fine old mansion built by the Ludlows about 1786 at Claverack, New York.

The Reverend Robert Fulton Crary, D.D., an Episcopal clergyman, who resides at Matteawan, New York, is the son of another daughter. He has a son who bears the name of his distinguished great-grandfather, and three daughters. These are the only descendants of Robert Fulton. Dr. Crary has inherited the artistic gifts of his grandfather.

Cadwallader D. Colden delivered a biographical memoir of Robert Fulton, who was his personal friend, before the Literary and Philosophical Society of New York in 1817, which upon request he presented to the Society for publication. It was resolved that the proceeds of the sale should be appropriated "towards the erection of a pedestrian statue" of Robert Fulton.

He is described in these words: "Mr. Fulton was about six feet high. His person was slender, but well proportioned and well

formed. Nature had made him a gentleman and bestowed upon him ease and gracefulness. He had much too good sense for the least affectation, and a modest confidence in his own worth and talents gave him an unembarrassed deportment in all companies. His features were strong and of a manly beauty; he had large dark eyes and a projecting brow expressive of intelligence and thought; his temper was mild and his disposition lively; he was fond of society, which he always enlivened by cheerful, cordial manners and instructed or pleased by his sensible conversation. He expressed himself with energy, fluency, and correctness and as he owed more to his own experience and reflections than to books, his sentiments were often interesting from their originality.

“In all his domestic relations, he was zealous, kind, generous, liberal, and affectionate. He knew of no use for money but as it was subservient to charity, hospitality, and the sciences. But what was most

conspicuous in his character was his calm constancy, his industry, and that indefatigable patience and perseverance which always enabled him to overcome difficulties."

Robert Fulton was one of those splendid and wonderful gifts for which this country and the world have been so often indebted to Ireland. Simple surroundings, adverse circumstances, in fact all the things which would seem to combine to keep people in obscurity have no effect upon such souls as Fulton's. They rise and shine, their achievements fill the pages of history, and their discoveries and inventions benefit the Nations for all time.

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